

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) An apparatus for regulating components of rotary machines for decoration of ceramic tiles, comprising: of a type where,

a rotary machine that translates tiles in a first direction on a mobile rest plane;

~~on which the tiles are translated in a predetermined direction, the following operate:~~

a matrix-bearing cylinder having an axis of rotation,  
the cylinder mobile in rotation about [[an]] the axis thereof,

which matrix-bearing cylinder is provided with at least an elastically-deformable peripheral part having a smooth external cylindrical surface made of an elastomer material,

on which smooth external cylindrical surface a shape is cut and recessed,

which shape is a matrix;

at least a doctor predisposed for operating in contact with the external surface of the matrix-bearing cylinder; ~~wherein it also comprises:~~

a vertically-developing frame;

a first slide constrained on the vertically-developing frame and slidable vertically with respect thereto;

the matrix-bearing cylinder being supported on the first slide, together with organs for supporting the matrix-bearing cylinder and organs for controlling rotation thereof about a rotation axis thereof;

a second slide constrained on the vertically-developing frame and sliding vertically with respect thereto;

the at least one doctor being supported on the second slide, together with organs for supporting the at least one doctor and organs for controlling movements of the at least one doctor;

means for relatively positioning the first slide and the second slide relative to the vertically-developing frame.

2. (original) The apparatus of claim 1, wherein the means for relatively positioning comprise: a maneuvering screw having a vertical axis, on which maneuvering screw are coupled a first nut, which is solidly constrained to the first slide, and a second nut, which is solidly constrained in translation along the vertical axis to the second slide and which is mobile in rotation about the vertical axis with respect to the second slide (4), which vertical axis is also a rotation axis of the second nut and the first nut.

3. (currently amended) The apparatus of claim 2, wherein the maneuvering screw is commanded to perform rotations of ~~predetermined~~ entities about the vertical axis of rotation thereof by a first step motor; the second nut being commanded to perform rotations of ~~predetermined~~ entities about the vertical axis of rotation and with respect to the second slide by a second step motor which is solidly constrained to the second slide.

4. (previously presented) The apparatus of claim 2, wherein the second slide is connected to a shaft for supporting the doctor, which shaft is positioned parallel to the axis of rotation of the matrix-bearing cylinder and which shaft is coaxially supported in a sleeve.

5. (currently amended) The apparatus of claim 4, wherein the second slide is associated to means for controlling a regulation of an inclination of the at least one doctor and also for controlling a pressure with which the at least one doctor is pressed contactingly against an external surface of the matrix-bearing cylinder; the means comprising a linear actuator operating in two directions between the second slide and a second end of a lever, a first end of which is solidly constrained in rotation to the shaft and a measuring device, which measuring device also operates between the second slide and the second end

of the lever in order to measure displacements of the second slide with respect to a ~~predetermined~~ reference position.

6. (original) The apparatus of claim 5, wherein the linear actuator operates together with a force measuring device, which measures an overall force which is exerted by the linear actuator on the lever.

7. (currently amended) The apparatus of claim 4, wherein the shaft is supported by a free coupling in the sleeve and is rotatably and axially slidably coupled to the lever ~~rotatably-solidly and axially slidably~~; the shaft exhibiting an end affording a slot internally of which a cam pivot is engaged, which cam pivot is solidly constrained to a spindle shaft; the spindle shaft being commanded to rotate about a perpendicular axis to the axis of the shaft by a step motor and belt transmission.

8. (original) The apparatus of claim 7, wherein the doctor is fixed to a support frame affording coaxial housings internally of which support frame the shaft is snugly coupled, which shaft affords a transversal hollow seating; the transversal hollow seating stably coupling with a pivot mounted eccentrically on the support frame and activated by a lever in order to pass from the stable coupling position with the hollow seating to a

completely uncoupled position in which the shaft is free inside the coaxial housings.

9. (original) The apparatus of claim 8, wherein the hollow seating is constituted by a portion of straight, circular cylindrical surface and in that the pivot exhibits an external diameter which is equal to a diameter of the portion of straight, circular cylindrical surface delimiting the hollow seating.

10. (previously presented) The apparatus of claim 3, wherein the second slide is connected to a shaft for supporting the doctor, which shaft is positioned parallel to the axis of rotation of the matrix-bearing cylinder and which shaft is coaxially supported in a sleeve.

11. (new) An apparatus for regulating components of rotary machines for decoration of ceramic tiles, comprising:

a rotary machine that translates tiles in a first direction on a mobile rest plane (16);

a vertically-oriented frame (1) of the rotary machine;

a matrix-bearing cylinder (3) positioned over the rest plane to contact an upper surface of the tiles in translating the tiles in the first direction, the cylinder having a horizontal rotational axis and vertically displaceable with respect to the frame and the mobile rest plane;

at least one elastically-deformable peripheral matrix part provided on the cylinder, the matrix part delimited by a smooth external cylindrical surface made of an elastomer material having a recessed matrix surface shape;

at least one doctor (5) positioned to operate contactingly on an external surface of the matrix-bearing cylinder;

a single maneuvering screw connected to the frame and having a vertical axis;

a first slide (2) constrained on the frame and slideable in the vertical direction via the maneuvering screw;

parts supporting the matrix-bearing cylinder on the first slide so that the cylinder is movable in the vertical direction;

a second slide (4) constrained to the frame above the first slide and supporting the at least one doctor, the second slide slidably in the vertical direction via the maneuvering screw;

parts controlling movement of the at least one doctor;  
and

the maneuvering screw connected to the first slide and connected to the second slide and controlling relative positioning of the first slide and the second slide relative to the frame, adjustment of the doctor with respect to the matrix-

bearing cylinder, and height adjustment of the matrix-bearing cylinder with respect to the mobile rest plane.

12. (new) The apparatus of claim 11, wherein,

a first nut (7) is coupled to the maneuvering screw and solidly constrained to the first slide,

a second nut (8) is coupled to the maneuvering screw and is free to rotate with respect to the second slide and is solidly constrained in translation along the vertical axis to the second slide and mobile in rotation about the vertical axis with respect to the second slide (4),

the vertical axis is also a rotation axis of the first nut and the second nut,

the first nut and the second nut independently controllably displaceable along the same vertical direction and controlling displacements of the first and second slides along the vertical direction.

13. (new) The apparatus of claim 12, wherein,

a first step motor rotates the maneuvering screw to command the first nut to translate up and down in the vertical direction directly by the rotation of the maneuvering screw resulting from operation of the first step motor, and

a second step motor acts on the second nut to control displacement of the second slide.

14. (new) The apparatus of claim 11, wherein,  
a first nut (7) coupled to the maneuvering screw,  
the first nut is solidly constrained to the first  
slide,

a second nut is coupled to the maneuvering screw,  
the second nut coupled solidly in translation, along  
the vertical axis of the maneuvering screw, to the second slide.

15. (new) The apparatus of claim 14, wherein,  
a first motor (9) rotates the maneuvering screw, and  
a second motor (11) rotates the second nut.

16. (new) The apparatus of claim 15, wherein,  
a belt transmission (10) connects the first motor to  
the maneuvering screw, and

the second motor is solidly constrained to the second  
slide by another belt transmission (12),

operation of the first and second motors independently  
positions the first and second slides vertically along the  
maneuvering screw.

17. (new) The apparatus of claim 15, wherein,  
the doctor is inclinable with respect to an external  
cylindrical surface of the matrix-bearing cylinder.